

REMARKS

Claims 47-67 are pending in this application. Claims 53-55 are withdrawn.

In response to the restriction requirement, Applicants hereby provisionally elect **Group I (A)**, as directed to dual chain wild type avidin, dual chain wild type pseudo-tetrameric avidin, DNA encoding said products and methods of expressing said DNA. This election is made with traverse.

At least claims 47-52 and 56-67 read on the elected group.

The instant application is a 371 National stage application of PCT/FI2004/000679. Thus, PCT rules regarding unity of invention apply under these circumstances.

PCT Rule 13.1 deals with the requirement of unity of invention and states that an international application should relate to only one invention, or if there is more than one invention, that the inclusion of those inventions in one international application is only permitted if all inventions are so linked as to form a single general inventive concept.

PCT Rule 13.2 defines the method for determining whether the requirement of unity of invention is satisfied in respect to a group of inventions claimed in an international application. Unity of invention exists when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding "special technical features." The

expression "special technical features" is defined in Rule 13.2 as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art.

The Office Action fails to satisfy the requirements of PCT Rule 13.1 and PCT Rule 13.2.

The Office Action asserts that the claims of Groups I(A), Group I(B), Group I(C) and Group I(D) differ in structure and function and therefore do not share any technical feature. Applicants disagree with this position.

The present claims relate to dual-chain avidin (dcAvid) comprising the fusion of two avidin monomers. More specifically, the avidin monomers are circularly permuted wherein the natural termini (C-terminal and N-terminal) are joined and the monomer is opened at another point to create new C- and N- termini. The circularly permuted avidin monomers are fused and the resulting fusion proteins (dcAvid) can form a pseudo-tetrameric dual-chain avidin that maintains its biotin binding properties. (See, page 5, lines 5-17, of the specification).

As pointed out in the Office Action, the presently pending claims feature monomers of wild-type avidin, streptavidin, poultry avidin, and avidin-related protein (AVR). Granted, there can be diversity among these monomers at the primary structure (i.e., amino acid sequence) level, but more importantly, the diversity disappears at the secondary, tertiary

and quarternary levels. Thus, although the avidin types share various levels of amino acid sequence identity, the types are all identical at the higher structural levels and serve identical functions.

Furthermore, the structures of wild type avidin, streptavidin, poultry avidin and AVR proteins (e.g., AVR2 and AVR4) are well known to anyone of ordinary skill in the art. Indeed, the structures are practically identical with minor differences. According to the structures, it is highly probable that the technology demonstrated with chicken avidin can be applied to the related proteins.

Moreover, as detailed in the specification, the dcAvd structures are formed from circularly permuted avidin that retains its native biological activity. (See, page 11, lines 3-9). Regardless of which avidin monomers are utilized, and despite any variation in their primary structure or amino acid sequences, the dcAvd structures all maintain the same structural features at the secondary, tertiary and quarternary levels.

The claimed subject matter therefore clearly possesses unity of invention under the standard of PCT Rule 13.2. Therefore, Applicants respectfully request withdrawal of the restriction requirement and examination on the merits of the claims in their full scope.

Should there be any matters that need to be resolved in the present application the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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